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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/814,918

03/31/2004

Dmitriy Dashevskiy

564-35308-US

6331

44871

7590

03/16/2006

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EXAMINER

TSAY, FRANK

ART UNIT

PAPER NUMBER

3672

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/814,918

Applicant(s)

DASHEVSKIY ET AL.

Examiner

Frank S. Tsay

Art Unit

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 10, 12, 14-20, 22, 23 and 25 is/are rejected.
- 7) ☒ Claim(s) 8, 11, 13, 21, 24 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/13/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9, 10, 12, 14-20, 22, 23, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,021,377 to Dubinsky et al.

Dubinsky et al discloses a closed-loop drilling system shown in Fig. 1, which comprises a drilling rig 10 positioned at the surface, a drill string 20 conveyed into a wellbore, the drill string having a bottomhole assembly 57 attached at the end of the drill string. The plurality of sensors and telemetry or MWD systems associated with the drilling system for measuring the surface responses and the downhole responses are anticipated by col. 1, lines 36-55 and col. 6, lines 9-60, where sensors and MWD are provided for measuring surface and downhole responses. The controller coupled to the drilling system is anticipated by the control unit 45 that includes at least one model shown in col. 6, lines 30+, col. 23, lines 27+, and Fig. 10, which utilizes at least one model 874, and the surface and downhole responses to predict and update the operational conditions of the drilling system. Furthermore:

- The at least one selected constraint is anticipated by the predefined criteria set forth for the dysfunctional model in col. 19, lines 19-27.
- The at least one control parameter is anticipated by col. 2, lines 1-21, where the control parameters comprises one of the weight-on-bit, RPM of drill string and drill fluid flow rate.

- The surface and downhole responses are anticipated by col. 2, lines 22, col. 6, lines 9+, and Fig. 10, where one of the WOB, RPM of drill string and drill bit, rate of penetration, torque or thrust force of the drill bit, hook load (col. 7, lines 52), and BHA vibration (col. 15, line 35), torque oscillation or torque shocks (col. 19, line 34) etc. is anticipated.
- The at least one advice parameter is anticipated by Fig. 10, where the measured parameters from the surface and downhole are fed into the simulation model and a new set of predicted (or computed parameters) were used in the control module as new set of operational parameters (or advised parameter) to enhance the continuous drilling operation. The recited at least one selected optimized drilling parameter is again anticipated by Fig. 10, as a simulation process by itself is an optimization process, the same set of data from the surface and the downhole measurements are continuously modified using iterative procedures to reach an optimum conditions for operational decisions.
- The at least one model also utilizes data relating to one of well profile parameters including lithological data, BHA geometry, BHA mechanical parameters, and formation mechanical data from an offset well. (see Figs. 6, 7, 8d and 10; also see col. 16, line 39-col. 7, line 60; col. Col. 20, lines 39 –58; col. 23, lines 27+, and claim 10)
- The at least one model is anticipated to be updated in real time using error calculation between a measured value for a drill system response

and a predicted value for the drilling system response as such is clearly shown in Fig. 6, and especially in Fig. 10, wherein the measured parameters are continuously fed into the models to generate computed or predicted parameters for drilling system response, and such process is repeated until an optimal condition is reached.

Allowable Subject Matter

Claims 8, 11, 13, 21, 24, 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Goldman, Womer et al, and Aldred et al all teach downhole drilling optimization and controls.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank S. Tsay whose telephone number is (571) 272-7038. The examiner can normally be reached on Monday thru Friday, 7:30am-5:00 pm, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on (571)272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Frank S Tsay
Primary Examiner
Art Unit 3672

3/7/06